Browser based approach for Smart Card Connectivity

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My Smart Card
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Challenges

- Installing crypto providers
  - Breaks mobility
  - Breaks ubiquity of web
  - Configurations hard for end user

- Supporting implementations compliant to various arch./browser/OS combination is painful

- User interface decoupled (and not controlled) through web application

- All crypto arch abstractions are leaky
  - Do not utilize all the functionalities offered by security device
SConnect

• Web apps drive the user interface
  - Enable the possibility of continuous improvement

• Implementation for a particular smart card access comes from server (as JavaScript)

• Enable other functionalities:
  - Alternative auth mechanisms
  - Digital signature & encryption for web content

• Consistent interfaces across browsers/os
SConnect security mechanisms

- HTTPS Required
- Override user’s decision to ignore SSL errors shown by browser
- Connection key to only allow authorized sites
- User Consent
Questions?
Leaky Abstraction

Smart Card Aware Application

Service Provider Interfaces

PC/SC IFD Handler Interface

Resource Manager

IFD Handler

Reader Driver

Middleware

Smart Card Readers

Smart Cards

Leaky
Abstraction that works

Smart Card Aware Application

Resource Manager

PC/SC RM Interface

PC/SC IFD Handler Interface

IFD Handler

Reader Driver
(USB CCID Class)

Smart Card Readers

Smart Cards